

ABSTRACT OF THE DISCLOSURE

A method and system for determining the semantic meaning of images is disclosed. The method includes deriving a set of perceptual semantic categories for representing important semantic cues in the human perception of images, where each semantic category is modeled through a combination of perceptual features that define the semantics of that category and that discriminate that category from other categories and, for each semantic category, forming a set of the perceptual features as a complete feature set CFS. The perceptual features and their combinations are preferably derived through subjective experiments performed with human observers. The method includes extracting perceptual features from an input image and applying a perceptually-based metric to determine the semantic category for that image. The input image can be processed to compute the CFS, followed by comparing the input image to each semantic category through the perceptually-based metric that computes a similarity measure between the features used to describe the semantic category and the corresponding features extracted from the input image; followed by assigning the input image to the semantic category that corresponds to a highest value of the similarity measure. The distance measure may also be used for characterizing a relationship of a selected image to another image in the image database by applying the perceptually-based similarity metric.